Listing of Claims:

1. (Currently Amended) An optical device ~~(100)~~ for converting wavelength division multiplex (WDM) signals[[, the]] having pulses ~~of~~ which are simultaneous and carried ~~by~~ at different wavelengths ~~(λ1, λ2, λ3, λ4)~~[[,]] into an optical time division multiplexing/demultiplexing (OTDM) signal[[,]] ~~the~~ having components ~~of~~ which are carried ~~by~~ at a ~~the~~ same wavelength ~~(λ4)~~ and time shifted ~~(t1, t2, t3, t4)~~, ~~which~~ the device ~~comprises~~ comprising:

shifting means ~~(102, 103, 104) adapted~~ configured to introduce a time shift between the pulses of the WDM signals which are simultaneous and carried at the different wavelengths by ~~the~~ optical carriers[[,]];

modulation means ~~(112, 113, 114) adapted~~ configured to modify ~~the~~ optical power of the WDM signals[[,]];

an optical spectral and temporal multiplexer/demultiplexer ~~(120)~~[[,]];

a birefringent propagation medium ~~(130)~~ into which the WDM signals having the pulses which are simultaneous and carried at the different wavelengths are injected ~~in such a manner as~~ to achieve [[a]] soliton trapping ~~phenomenon~~[[,]]; and

absorption means ~~(140) adapted~~ configured to introduce optical losses into the components of the OTDM signal.

2. (Currently Amended) An optical device for converting an optical time division multiplexing/demultiplexing (OTDM) signal ~~whose~~ having components which are time shifted ~~(t1, t2, t3, t4)~~ and carried ~~by the~~ at a same wavelength ~~(λ4)~~ into wavelength division multiplex (WDM) signals ~~whose~~ having pulses which are simultaneous and carried ~~by~~ at different

wavelengths ~~(λ1, λ2, λ3, λ4)~~, ~~which~~ the device ~~comprises~~ comprising:

absorption means ~~(140) adapted~~ configured to introduce optical losses into the components of the OTDM signal[[,]];

a birefringent propagation medium ~~(130)~~ into which the OTDM signal having the components which are time shifted and carried at the same wavelength is injected ~~in such a manner as~~ to achieve [[a]] soliton trapping ~~phenomenon~~[[,]];

an optical spectral and temporal multiplexer/demultiplexer; ~~(120)~~[[,]] and

modulation means ~~(112, 113, 114) adapted~~ configured to modify ~~the~~ optical power of the WDM signals having the pulses which are simultaneous and carried at the different wavelengths.

3. (Currently Amended) [[A]] The device according to claim 2, ~~characterized in that it~~ further ~~comprises~~ comprising:

shifting means ~~(102, 103, 104) adapted~~ configured to introduce a time shift between the pulses of the WDM signals carried by ~~the~~ optical carriers.

4. (Currently Amended) [[A]] The device according to claim 1 ~~or 2~~, ~~characterized in that~~ wherein the shifting means ~~(102, 103, 104)~~ comprise variable delay lines.

5. (Currently Amended) [[A]] The device according to claim 1 ~~or 2~~, ~~characterized in~~ wherein the modulation means ~~(112, 113, 114)~~ comprise variable attenuators.

6. (Currently Amended) [[A]] The device according to claim 1 ~~or 2~~, ~~characterized in that it~~ further ~~comprises~~ comprising:

a polarization controller at ~~the~~ an entry of the birefringent propagation medium ~~(130)~~ to encourage ~~the~~ injection of WDM/OTDM signals into said propagation medium with a polarization at 45° to ~~its~~ main axes of the birefringent propagation medium.

7. (Currently Amended) [[A]] The device according to claim 1 ~~or 2, characterized in that~~ wherein the absorption means ~~(140)~~ comprise an electro-absorption modulator ~~(MEA)~~.

8. (Currently Amended) [[A]] The device according to claim 1 ~~or 2, characterized in that~~ wherein the absorption means ~~(140)~~ comprise a saturable absorber.

9. (Currently Amended) A method ~~of~~ for converting wavelength division multiplex (WDM) signals[[, the]] having pulses ~~of~~ which are simultaneous and carried ~~by~~ at different wavelengths ~~(λ1, λ2, λ3, λ4)~~[[,]] into an optical time division multiplexing/demultiplexing (OTDM) signal[[,the]] having components ~~of~~ which are time shifted and carried ~~by the~~ at a same wavelength ~~(λ4), by means of the device according to claim 1 or 2, which~~ the method ~~comprises~~ comprising the steps of:

time shifting the pulses of the WDM signals which are simultaneous and carried at the different wavelengths by ~~the~~ optical carriers[[,]];

attenuating the WDM signals ~~in order for them to~~ such that the WDM signals have different optical powers[[,]];

spectrally and temporally multiplexing the WDM signals having the pulses which are simultaneous and carried at the different wavelengths[[,]];

injecting the ~~wavelength division multiplex obtained~~ WDM signals having

the pulses which are simultaneous and carried at the different wavelengths into ~~the~~ a birefringent propagation medium ~~in such a manner as~~ to achieve [[a]] soliton trapping ~~phenomenon~~ and obtain [[an]] the OTDM signal having the components which are time shifted and carried at the same wavelength[[,]]; and

equalizing the optical power of ~~the~~ components of the obtained OTDM signal having the components which are time shifted and carried at the same wavelength ~~obtained~~.

10. (Currently Amended) A method ~~of~~ for converting an optical time division multiplexing/demultiplexing (OTDM) signal[[, the]] having components ~~of~~ which are time shifted ~~(t1, t2, t3, t4)~~ and carried ~~by the~~ at a same wavelength ~~(λ4)~~ into wavelength division multiplex (WDM) signals[[, the]] having pulses ~~of~~ which are simultaneous and carried ~~by~~ at different wavelengths, ~~(λ1, λ2, λ3, λ4), by means of the device according to claim 2, which~~ the method ~~comprises~~ comprising the steps of:

attenuating the components of the OTDM signal ~~in~~ such ~~a manner~~ that ~~they~~ the components have different optical powers[[,]];

injecting the OTDM signal into ~~the~~ a birefringent propagation medium ~~in such a manner as~~ to achieve [[a]] soliton trapping ~~phenomenon~~ and recover a ~~wavelength division multiplex~~ WMD signal having the pulses which are simultaneous and carried at the different wavelengths[[,]];

spectrally and temporally demultiplexing the ~~wavelength division multiplex~~ WMD signal ~~in such a manner as~~ to obtain a plurality of WDM signals ~~whose~~ having pulses which are time shifted and carried ~~by~~ at the different wavelengths[[,]]; and

equalizing the optical power of the pulses of each of said recovered plural ~~the~~ WDM signals which are timed shifted and carried at the different wavelengths ~~obtained~~.

11. (Currently Amended) [[A]] The method according to claim 10, ~~characterized in that it~~ further ~~consists in~~ comprising:

time shifting the pulses of ~~the~~ each of said plural WDM signals carried by ~~the~~ resulting optical carriers ~~in such a manner as~~ to render them simultaneous.

12. (New) The device according to claim 2, wherein the shifting means comprise variable delay lines.

13. (New) The device according to claim 2, wherein the modulation means comprise variable attenuators.

14. (New) The device according to claim 2, further comprising:

a polarization controller at an entry of the birefringent propagation medium to encourage injection of WDM/OTDM signals into said propagation medium with a polarization at 45° to main axes of the birefringent propagation medium.

15. (New) The device according to claim 2, wherein the absorption means comprise an electro-absorption modulator.

16. (New) The device according to claim 2, wherein the absorption means comprise a saturable absorber.